CLAIMS

- 1. Process for improving a fingerprint image comprising at least the stages of:
- normalisation of the initial image;
- determination of the useful zone of the image;

and characterised by the fact that it comprises in addition successive stages of:

- cutting of the image into a plurality of blocks;
- calculation of the FFT of each block;
- determination of the frequencies of the image blocks based on the aforementioned FFT;
 - application of Gabor filters of parameters determined by the aforementioned frequencies;
 - determination of the orientations of the image based on the filtered images derived from the preceding stage.
- 2. Process for improving a fingerprint image according to claim 1, characterised by the fact that the aforementioned blocks comprise overlapping zones.
- 3. Process for improving a fingerprint image according to claim 1, characterised by the fact that the aforementioned frequencies of the blocks are determined by the highest frequency in a higher energy frequency band.

- 4. Process for improving a fingerprint image according to claim 1, characterised by the fact that the aforementioned stage of determining frequencies of the image blocks additionally comprises a stage of evaluating the relevance of the calculation of the values of the aforementioned frequencies.
- 5. Process for improving a fingerprint image according to claim 1, characterised by the fact that the aforementioned stage of determination of the orientations of the image comprises additionally a stage of evaluation of the relevance of calculation of the values of the aforementioned orientations.
- 6. Process for improving a fingerprint image according to claim 4, characterised by the fact that in case of irrelevance of one of the aforementioned frequencies, the aforementioned frequency is recalculated based on a function of the initial FFT.
- 7. Process for improving a fingerprint image according to claim 6, characterised by the fact that the irrelevance of one of the aforementioned frequencies is assessed in relation to a predetermined threshold.
- 8. Process for improving a fingerprint image according to claim 1, characterised by the fact that the aforementioned Gabor filters have as orientation parameters 0°, 22.5°, 45°, 67.5°, 90°, 112.5°, 135° and 157.5°.

- 9. Process for improving a fingerprint image according to claim 1, characterised by the fact that the aforementioned stage of determining orientations comprises the stages consisting in:
 - reconstituting images based on the aforementioned Gabor filtering of the aforementioned blocks;
 - calculating the average intensity of each filtered image for zones of a predetermined size;
 - creating a new image of orientations containing the orientation of the block of the highest intensity;
 - creating a new quality image containing the intensity of the block of the highest intensity;
 - filtering of the aforementioned image of the orientations.
- 10. Process for improving a fingerprint image according to claim 1, characterised by the fact that the process additionally comprises stages of creation of a merged final image based on the aforementioned orientations and binarisation and skeletonisation of the aforementioned merged final image.